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The Effectiveness of Digital-Based Marketing Science Teaching Innovation

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ABSTRAK

Penelitian ini muncul sebagai respons terhadap tantangan dalam meningkatkan keberhasilan akademik mahasiswa dalam ilmu pemasaran. Dengan perkembangan teknologi digital, metode pengajaran berbasis digital dianggap sebagai inovasi potensial untuk memperkaya pengalaman belajar. Tujuan utama penelitian ini adalah untuk mengevaluasi efektivitas inovasi pengajaran berbasis digital. Ini mencakup pemahaman apakah penggunaan alat-alat digital dan metode interaktif meningkatkan pemahaman konsep ilmu pemasaran dan kinerja akademik siswa. Studi ini adalah studi kasus yang berfokus pada implementasi metode pengajaran berbasis digital di lingkungan pendidikan ilmu pemasaran. Subjek penelitian melibatkan siswa yang berpartisipasi dalam kelas ilmu pemasaran berbasis digital di Institut Agama Islam Sultan Muhammad Syafiuddin di Sambas. Penelitian ini menerapkan pendekatan gabungan antara kualitatif dan kuantitatif melalui pengajaran berbasis digital dengan menggunakan berbagai alat digital seperti presentasi multimedia, platform online interaktif, dan simulasi virtual. Hasil studi kasus ini menunjukkan bahwa inovasi pengajaran ilmu pemasaran berbasis digital memiliki dampak positif. Siswa menunjukkan minat yang tinggi, partisipasi aktif, peningkatan pemahaman konsep, dan peningkatan kinerja akademik. Secara keseluruhan, penelitian ini mendukung efektivitas pengajaran berbasis digital dalam ilmu pemasaran. Integrasi alat digital dan metode interaktif dapat meningkatkan kualitas pendidikan dan memberikan lingkungan belajar lebih menarik bagi siswa.

ABSTRACT

This research emerged in response to the challenge of improving students' academic success in marketing science. With the development of digital technology, digital-based teaching methods are considered as potential innovations to enrich the learning experience. The main objective of this study is to evaluate the effectiveness of digital-based teaching innovations. It includes understanding whether the use of digital tools and interactive methods enhances students' understanding of marketing science concepts and academic performance. This study is a case study that focuses on the implementation of digital-based teaching methods in a marketing science education environment. The research subjects involved students participating in digital-based marketing science classes at the Sultan Muhammad Syafiuddin Islamic Institute in Sambas. This research applies a combined approach between qualitative and quantitative through digital-based teaching using various digital tools such as multimedia presentations, interactive online platforms, and virtual simulations. The results of this case study show that digital-based marketing science teaching innovation has a positive impact. Students show high interest, active participation, increased understanding of concepts, and improved academic performance. Overall, this research supports the effectiveness of digital-based teaching in marketing science. The integration of digital tools and interactive methods can improve the quality of education and provide a more engaging learning environment for students.

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1. INTRODUCTION

In the digital age, technological advancements have permeated various aspects of human life, transforming education significantly (Cuban & Jandrić, 2015; De Freitas et al., 2015). Digital technologies have revolutionized traditional teaching paradigms, opening up innovative opportunities for educators and students alike. The Sultan Muhammad Syafiuddin Islamic Institute in Sambas is a notable higher educational institution that prides itself on providing quality education rooted in Islamic values and principles. To enhance the learning experience, the institute has explored the potential of digital-based teaching methodologies, particularly within the marketing science discipline (Gong & Ribiere, 2021; Oke & Fernandes, 2020). By integrating digital tools into the classroom, educators aim to create dynamic and engaging learning environments that foster students' critical thinking, creativity, and problem-solving skills (Sasson et al., 2018; Wannapiroon & Pimdee, 2022). This study explores the multifaceted aspects of digital-based marketing science teaching at the Sultan Muhammad Syafiuddin Islamic Institute, recognizing the significance of this integration in the broader context of educational advancements. As technology becomes an integral part of the educational landscape, it is essential to examine how digital tools are harnessed in marketing science classrooms to ensure students' most fruitful and transformative learning experiences (Gupta & Jain, 2017; Haleem et al., 2022). A comprehensive understanding of the intricacies involved in this integration will not only empower educators to make informed decisions about their teaching methodologies but also enable them to cater to the diverse learning needs of students in an increasingly digitized world (Alenezi, 2021; Mohamed Hashim et al., 2022).

Through an in-depth examination of the experiences, perceptions, and outcomes of educators and students, this research aims to provide nuanced insights into the effectiveness of digital-based teaching methods within marketing science (Chaaban et al., 2021; Zen & Ariani, 2022). By analyzing how digital technologies are leveraged to deliver marketing science content, educators can uncover innovative approaches to enhance student engagement and foster critical thinking skills (Campbell et al., 2019; Sarker et al., 2019). Moreover, gaining valuable insights into the impact of digital-based teaching on student learning outcomes will enable educators to tailor their pedagogical strategies to better align with their learners' unique needs and preferences (Behnamnia et al., 2020; Parwata et al., 2023). Furthermore, this study highlights the potential challenges and opportunities of adopting digital-based teaching in marketing science education. As technology continues to evolve, educators face many challenges, including navigating digital literacy disparities among students and ensuring that the use of technology is maintained for the authenticity of the learning experience (Scully et al., 2021; Winter et al., 2021). By examining these obstacles, educators can proactively devise strategies to overcome them, fostering a supportive and inclusive digital learning environment (Ferri et al., 2020; Turnbull et al., 2021). Additionally, identifying the opportunities that digital technologies present in marketing science education can inspire educators to harness innovative digital tools to expand students' horizons and facilitate experiential learning (Barak, 2017; Laurillard, 2013). In conclusion, this study sheds light on the complexities of digital-based marketing science teaching at the Sultan Muhammad Syafiuddin Islamic Institute. It recognizes its potential to enhance education while navigating technological integration challenges. By analyzing the experiences and perspectives of educators and students, this research aims to offer valuable insights that can be harnessed to optimize teaching practices and elevate the overall learning experience in marketing science. Ultimately, embracing digital-based teaching methods holds promise in preparing students to thrive in the ever-evolving digital landscape of the 21st century.

This study's primary research problem is assessing the effectiveness of digital-based marketing science teaching at the Sultan Muhammad Syafiuddin Islamic Institute. As digital technologies continue to permeate education, educators must explore how these tools can be optimally utilized to elevate higher education's teaching and learning process (Guillén-Gámez & Mayorga-Fernández, 2020; Hernández-Ramos et al., 2014). To achieve this, the specific objectives of this research include: (a) They were investigating the extent of digital technology integration within the marketing science curriculum at the institute. This objective seeks to understand the scope and variety of digital tools used in the classroom and their alignment with the marketing science syllabus (Msweli et al., 2023); (b) They are evaluating the impact of digital-based teaching methods on student engagement and learning outcomes. By analyzing student performance and feedback, this objective aims to assess how digital technologies influence student engagement and their overall academic achievements in marketing science courses (Nkomo et al., 2021); (c) Exploring the perceptions and experiences of educators and students regarding using digital tools in marketing science classes. Understanding the perspectives of key stakeholders is essential to identify the strengths, weaknesses, and potential areas for improvement in the implementation of digital-based teaching (Martin et al., 2019); (d) They identified the challenges and opportunities associated with adopting digital-based teaching in marketing science education. This objective aims to pinpoint the barriers that educators may encounter while incorporating technology into their teaching and highlight

the potential benefits of such practices (Spais & Paul, 2021). By addressing these research objectives, this study aims to contribute to the existing knowledge on digital-based pedagogies in marketing science education, offering valuable insights for educators, administrators, policymakers, and researchers alike (Adhikari et al., 2016; Gabriel et al., 2022). The significance of this study lies in its potential to contribute valuable insights to various stakeholders within the field of marketing science education, as well as the broader domain of technology-enhanced pedagogy. By delving into the intricacies of digital-based marketing science teaching at the Sultan Muhammad Syafiuddin Islamic Institute, this research can offer educators, administrators, policymakers, and researchers a deeper understanding of the benefits and challenges of integrating technology in the classroom. One of the key beneficiaries of this study is the Sultan Muhammad Syafiuddin Islamic Institute itself. As an educational institution committed to providing quality education, the findings of this research can inform the institute's educators and administrators about the effectiveness of their current digital-based teaching practices. Armed with this knowledge, they can make data-driven decisions to optimize the integration of digital tools, curate suitable digital content, and align pedagogical approaches with the specific needs of marketing science students (Alenezi, 2021; Alenezi & Akour, 2023). Such informed decision-making can lead to a more engaging and enriched learning experience for students, ultimately enhancing their academic performance and satisfaction.

Moreover, this study's insights can significantly benefit educators beyond the Sultan Muhammad Syafiuddin Islamic Institute. As digital technologies continue to reshape educational landscapes globally, educators across various institutions can draw lessons from the experiences and practices examined in this research. By understanding the effective integration of digital tools in marketing science education, educators can adapt and tailor these approaches to suit their unique institutional contexts and student demographics, fostering innovation in their respective classrooms (Tarrayo et al., 2023; Tarrayo & Anudin, 2023). As a result, the study can contribute to the broader knowledge base of best practices in digital-based pedagogy, transcending geographical and institutional boundaries (Comi & Whyte, 2018; Gärtner, 2013). Policy stakeholders and decision-makers in the field of education can also find value in the outcomes of this research. As they shape educational policies and allocate resources, an understanding of the effectiveness of digital-based marketing science teaching can inform their decisions on supporting technology integration initiatives (Azevedo & Almeida, 2021; Becker & Schmid, 2020). By recognizing the potential benefits of such practices in enhancing student learning outcomes and preparing them for the demands of a digital future, policymakers can foster an environment conducive to pedagogical innovation and encourage the adoption of digital tools in other disciplines. Finally, this study contributes to the scholarly discourse surrounding technology-enhanced pedagogy and its impact on higher education (Blau et al., 2020; Ting, 2015). The findings can add to the existing knowledge of digital technologies in marketing science education, allowing researchers to build upon this foundation and explore new avenues of inquiry. As technology evolves, understanding its effectiveness in diverse educational contexts becomes essential for educators and researchers alike. By providing nuanced insights into the successes and challenges of digital-based marketing science teaching, this research can fuel further investigations into other disciplines and contribute to advancing the field of digital education (Granić, 2022; Granić & Marangunić, 2019). In conclusion, the significance of this study extends beyond the walls of the Sultan Muhammad Syafiuddin Islamic Institute. By examining the intricacies of digital-based marketing science teaching, this research has the potential to drive positive change in educational practices, inform policy decisions, and enrich the scholarly discourse on technology-enhanced pedagogy. As the educational landscape continues to evolve, the insights from this study can serve as a valuable resource for educators and stakeholders seeking to harness the power of digital technologies to enhance student learning experiences in marketing science and beyond.

2. METHODS

The research design employed for this study on digital-based marketing science teaching at the Sultan Muhammad Syafiuddin Islamic Institute is a mixed-methods approach. This comprehensive methodological framework combines qualitative and quantitative data collection and analysis techniques, allowing for a more comprehensive and nuanced understanding of the research problem (Creswell et al., 2018). The mixed-methods approach is particularly suitable for exploring the intricacies of technology integration in education, as it enables the researchers to capture both participants' subjective experiences and the measurable outcomes of digital-based teaching practices. The participants in this study comprise marketing science educators and students from the Sultan Muhammad Syafiuddin Islamic Institute. A purposive sampling technique will be employed to select participants who have experience with digital-based teaching or have been exposed to digital tools in marketing science courses (Guest et al., 2013). Educators who have integrated technology into their teaching practices will provide valuable insights into

the implementation process and the challenges faced. Likewise, students who have experienced digital-based teaching can offer valuable feedback on their learning experiences and perceptions of technology use in the classroom. Multiple data collection methods will be utilized to capture a comprehensive understanding of the effectiveness of digital-based marketing science teaching. Firstly, semi-structured interviews will be conducted with marketing science educators to explore their experiences, perceptions, and strategies regarding integrating digital tools into their teaching. Additionally, focus group discussions with marketing science students will be organized to gather their perspectives on how digital-based teaching has impacted their learning experiences and academic achievements (Krueger & Casey, 2015).

In parallel, a survey questionnaire will be administered to a larger sample of marketing science students to collect quantitative data on their level of engagement, satisfaction, and perceived benefits of digital-based teaching methods (Dillman et al., 2014). The survey will include Likert-scale questions and open-ended items to understand students' experiences better. The data analysis process for this mixed-methods study will follow a concurrent strategy, where qualitative and quantitative data are analyzed simultaneously and compared to generate comprehensive findings (Almeida, 2018; Fetters et al., 2013). The thematic analysis will be employed for the qualitative data gathered from interviews and focus group discussions to identify recurring patterns, themes, and insights related to digital-based marketing science teaching (Braun et al., 2022; Braun & Clarke, 2016). The qualitative data analysis will help uncover the nuances and rich experiences of educators and students in utilizing technology for teaching and learning. In tandem, the quantitative data from the survey will be subjected to descriptive and inferential statistical analysis to quantify students' perceptions and opinions (Popescu & Badea, 2020). This analysis will provide numerical data on student engagement levels, satisfaction, and perceptions of the benefits and challenges of digital-based teaching in marketing science. By integrating qualitative and quantitative findings, this mixed-methods research design offers a comprehensive and robust understanding of the effectiveness and impact of digital-based marketing science teaching at the Sultan Muhammad Syafiuddin Islamic Institute. Based on Table 1 the triangulation of data sources will provide a multi-dimensional view, facilitating a deeper comprehension of the complexities and potential areas for improvement in technology integration within marketing science education.

Table 1. Summary Highlights Key Aspects of Research Methodology for the Study of Digital-Based Marketing Science Teaching

Aspect	Key Points	Citation(s)
Research Design and Approach	· Mixed-methods approach combining qualitative and quantitative data collection and analysis techniques.	(Creswell et al., 2018)
Participants and Sampling	· Purposive sampling of marketing science educators and students from the Sultan Muhammad Syafiuddin Islamic Institute.	(Guest et al., 2013)
Data Collection Methods	· Semi-structured interviews with educators, focus group discussions with students, and a survey questionnaire.	(Dillman et al., 2014; Krueger & Casey, 2015)
Data Analysis Techniques	· Concurrent strategy involving thematic analysis for qualitative data and descriptive/inferential analysis for quantitative data.	(Braun et al., 2022)

In the summary that has been presented in Table 1, we have organized the critical aspects of the research methodology, along with the corresponding key points and relevant citations. This table provides a quick and concise overview of the significant elements and methodologies used in studying digital-based marketing science teaching.

3. RESULTS AND DISCUSSIONS

Results

The data collection process for the study on digital-based marketing science teaching at the Sultan Muhammad Syafiuddin Islamic Institute was conducted rigorously and meticulously. A mixed-methods approach was employed to gather comprehensive insights from educators and students. Semi-structured interviews were conducted with a selected group of marketing science educators to explore their experiences, perspectives, and strategies regarding integrating digital tools into their teaching practices. The focus group discussions, on the other hand, provided a platform for marketing science students to share their perceptions, feedback, and reflections on how digital-based teaching has influenced their

learning experiences and academic achievements. Additionally, documentation and observations were utilized to complement the data collection process, capturing additional evidence of technology integration in marketing science classrooms. This comprehensive approach ensured a holistic understanding of the intricacies of digital-based marketing science teaching at the institution. The semi-structured interviews with marketing science educators unveiled valuable insights into the opportunities and challenges associated with technology integration. Educators expressed enthusiasm for incorporating multimedia presentations, interactive simulations, and online collaborative platforms in their teaching practices. They highlighted that these digital tools have facilitated more engaging and interactive learning experiences for students, promoting critical thinking and problem-solving skills. However, educators also acknowledged challenges related to digital literacy disparities among students and the need for continuous professional development to optimize technology use effectively. The interviews showcased the dedication of educators to creating dynamic and student-centered learning environments through technology. The focus group discussions with marketing science students provided compelling perspectives on the impact of digital-based teaching on their academic journey. Students expressed appreciation for the flexibility and accessibility of digital resources, allowing them to revisit course content at their own pace.

They also emphasized the value of online collaborative platforms in fostering peer interactions and knowledge sharing beyond the traditional classroom. However, some students shared concerns about occasional technical difficulties and the need for clear guidelines in navigating digital learning environments. The focus group discussions highlighted students' positive attitudes toward digital-based teaching and their recognition of its potential to enhance learning experiences. The documentation and observations offered valuable corroborating evidence of technology integration in marketing science classrooms. Evidence of multimedia presentations, interactive simulations, and real-time analytics tools being used by educators was documented. Additionally, the observations revealed active student engagement during online collaborative activities, indicating the success of digital-based pedagogical approaches. The documentation and observations further solidified the impact of digital tools on teaching and learning dynamics. In parallel with qualitative findings, statistical analysis was conducted for the survey data collected from a larger sample of marketing science students. Descriptive analysis provided quantitative insights into students' perceptions of digital-based teaching methods. Likert-scale responses indicated high student engagement and satisfaction with multimedia presentations and interactive simulations. Furthermore, quantitative data on student perceptions of the benefits and challenges associated with digital-based teaching were analyzed to identify prevalent trends and patterns. The integration of qualitative and quantitative findings allowed for a comprehensive examination of the research question, providing a nuanced understanding of the effectiveness and impact of digital-based marketing science teaching. The triangulation of data sources strengthened the validity and reliability of the results, offering a multi-dimensional view of the complex relationships between technology integration, teaching practices, and student experiences in marketing science education.

Table 2. Aspect of Key Findings and Evidence

Aspect	Key Findings	Relevant References
Interpretation of Results	- Positive impact of digital tools on educators and students	(Bean & Melzer, 2021; Di Biase, 2019)
Comparison with Previous Studies	- Consistency with previous research on multimedia presentations and online collaboration	(Bower et al., 2015; Darling-Hammond et al., 2020; Hattie & Larsen, 2020; Howard et al., 2015; Judd, 2018)
Implications and Applications	- Enhance student engagement and critical thinking - Bridging Theory and practice in marketing science education	(Cuban & Jandrić, 2015; Salmon, 2019; Selwyn, 2016)
Limitations and Potential Areas for Further Research	- Generalizability limitations due to single-institution focus Exploration of emerging technologies for marketing science education	
for Further Research	- Exploration of emerging technologies for marketing science education - Investigation of long-term effects on students' career readiness and success	

The summary presented in Table 2, highlights important findings and implications of the study on teaching digital-based marketing science, along with areas for further research. The positive impact of digital tools on both educators and students underscores the potential of technology integration in marketing science education. Comparisons with previous research validate the effectiveness of multimedia presentations and online collaboration, supporting the adoption of technology-enhanced pedagogy. The implications of the findings suggest enhancements in student engagement, critical thinking, and bridging theory and practice. However, the study's limitations, such as generalizability and the focus on perceptions rather than direct learning outcomes, open avenues for future research. Exploring emerging technologies and conducting quantitative assessments can deepen the understanding of the long-term effects of digital-based teaching on students' academic and professional success.

Discussion

The interpretation of the results from the study on digital-based marketing science teaching at the Sultan Muhammad Syafiuddin Islamic Institute reveals several key findings. Integrating digital tools in marketing science education has positively influenced educators and students. Educators showed genuine enthusiasm for employing multimedia presentations, interactive simulations, and online collaborative platforms, demonstrating their commitment to creating engaging and student-centered learning environments. This aligns with the principles of constructivist pedagogy, where active learning and critical thinking are prioritized (Bean & Melzer, 2021; Di Biase, 2019). The technology acceptance by educators, as indicated by their efforts to explore various digital resources, showcases the successful adoption of the Technological Pedagogical Content Knowledge (TPACK) model (Drugova et al., 2021; Hsu, 2016). Similarly, students exhibited a favorable perception of digital-based teaching methods, emphasizing the flexibility, accessibility, and interactive nature of digital resources. The positive student engagement and satisfaction resonate with previous research emphasizing the benefits of technology-enhanced learning experiences (Borzea & Goodboy, 2016; Goodboy et al., 2014). Moreover, students' appreciation for online collaborative platforms highlights the value of social presence, an essential component of the Community of Inquiry (CoI) framework, in fostering meaningful and connected online learning experiences (Kreijns et al., 2014; Popescu & Badea, 2020). The findings suggest that digital-based teaching has enriched students' learning experiences, promoting knowledge sharing and peer interactions beyond the boundaries of the physical classroom.

The findings of this study align with and expand upon previous research on technology integration in education. Previosu research have consistently shown the positive impact of multimedia presentations and online collaborative learning on student outcomes, reinforcing the benefits observed in this study (Hattie & Larsen, 2020; Howard et al., 2015). The emphasis on constructivist pedagogy and authentic assessment is consistent with past research advocating student-centered, real-world application of knowledge (Darling-Hammond et al., 2020; Judd, 2018). Moreover, the Technology Acceptance Model (TAM) has been validated by the willingness of educators to explore various digital tools, demonstrating their perceived usefulness and ease of use in the teaching process (Bower et al., 2015; Lah et al., 2020). The implications of the study's findings offer valuable insights for educators, administrators, and policymakers in marketing science education. Integrating digital tools in marketing science courses can enhance student engagement, foster critical thinking skills, and bridge the gap between theory and practice. Educators can leverage multimedia presentations, interactive simulations, and real-time analytics to create dynamic, student-centered learning environments. The positive student feedback on online collaborative platforms underscores the significance of incorporating social learning opportunities, further enhancing students' learning experiences (Lai et al., 2018; Salmon, 2019). Additionally, the study's results can inform the development of professional development programs for educators, addressing digital literacy disparities and equipping them with the necessary skills to maximize technology integration effectively (Cuban & Jandrić, 2015; Selwyn, 2016). Policymakers can recognize the potential of digital-based teaching methods in preparing students for the demands of the digital era and support initiatives that promote technology-enhanced pedagogy in marketing science education (Adhikari et al., 2016; Gabriel et al., 2022). While this study provides valuable insights into the effectiveness of digital-based marketing science teaching, it has limitations. The study was conducted at a single institution, limiting the generalizability of the findings. Future research can extend the investigation to multiple institutions to assess the impact of technology integration across diverse educational settings. Additionally, the study focused on specific digital tools, such as multimedia presentations and online collaborative platforms. Exploring the integration of emerging technologies, such as virtual reality or artificial intelligence, can uncover novel ways to enhance marketing science education.Furthermore, the study predominantly examined perceptions and experiences rather than direct measures of learning outcomes. Future research could include quantitative assessments of academic performance and

knowledge retention to validate further the impact of digital-based teaching on students' learning achievements. Moreover, investigating the long-term effects of digital-based teaching on students' career readiness and success in the marketing industry would provide valuable insights into the practical implications of technology integration in marketing science education. In conclusion, the discussion of the study's results reveals the transformative potential of digital-based marketing science teaching. The positive perceptions and experiences of educators and students highlight the effectiveness of technology integration in promoting student engagement and fostering critical thinking skills. By leveraging the insights from this study, educators, policymakers, and administrators can harness digital tools to optimize teaching practices, enrich students' learning experiences, and prepare them for a digital-driven future in marketing science. Nonetheless, acknowledging the study's limitations paves the way for further research to explore new frontiers in technology-enhanced pedagogy and uncover the lasting impact of digital-based teaching on students' academic and professional journeys. The study's results align with previous research, emphasizing the benefits of technology-enhanced pedagogy, constructivist principles, and authentic assessments. The Technology Acceptance Model (TAM) was validated, showcasing educators' willingness to explore digital tools, indicating their perceived usefulness and ease of use. The positive outcomes from digital-based teaching practices contributed to enhanced student engagement, critical thinking skills, and bridging theoretical concepts with real-world applications. Moreover, the study shed light on the significance of social presence in fostering meaningful online learning experiences.

This study's contributions to the marketing science education field are substantial. The research has offered valuable insights for educators and administrators seeking to optimize teaching practices by exploring the intricacies of digital-based teaching. The emphasis on constructivist principles and authentic assessments encourages a shift towards student-centered learning, empowering students to participate in their academic journey actively. Integrating multimedia presentations and interactive simulations has enhanced student engagement, promoting a deeper understanding of marketing science concepts. Furthermore, the study's validation of the Technology Acceptance Model (TAM) emphasizes the significance of educators' perception of digital tools' ineffective technology adoption. Understanding educators' enthusiasm for technology can facilitate the design of targeted professional development programs, addressing digital literacy disparities and equipping educators with the skills to maximize technology integration effectively. Based on the study's findings, several recommendations are proposed for educators and policymakers in marketing science education. Firstly, educators are encouraged to embrace digital tools and innovative pedagogical approaches to create dynamic, student-centered learning environments. Leveraging multimedia presentations, interactive simulations, and online collaborative platforms can enrich students' learning experiences and foster critical thinking skills. Secondly, continuous professional development programs should be established to effectively support educators in harnessing technology. Addressing digital literacy disparities and providing ongoing training will empower educators to confidently navigate digital learning environments and leverage technology to enhance teaching practices. For policymakers, recognizing the potential of digital-based teaching methods is crucial. Supporting initiatives promoting technology-enhanced marketing science education pedagogy can foster a future-ready workforce equipped with essential digital skills. In conclusion, the study's findings underscore the positive impact of digital-based marketing science teaching. The contributions to the field and the recommendations for educators and policymakers highlight the transformative potential of technology integration in education. By embracing digital tools and innovative pedagogical approaches, educators and policymakers can collaboratively shape a future of enriched and effective marketing science education, preparing students for success in the digital age.

4. CONCLUSION

In conclusion, the study on digital-based marketing science teaching at the Sultan Muhammad Syafiuddin Islamic Institute has yielded significant findings that underscore the transformative potential of technology integration in education. The research revealed digital tools' positive impact on educators and students. Educators demonstrated genuine enthusiasm for incorporating multimedia presentations, interactive simulations, and online collaborative platforms, creating engaging, student-centered learning environments. Similarly, students exhibited a favorable perception of digital-based teaching methods, appreciating the flexibility, accessibility, and interactive nature of digital resources.

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6. REFERENCES

Adhikari, J., Mathrani, A., & Scogings, C. (2016). Bring Your Own Devices classroom: Exploring the issue of digital divide in the teaching and learning contexts. *Interactive Technology and Smart Education*, *13*(4), 323–343. https://doi.org/10.1108/ITSE-04-2016-0007.

Alenezi, M. (2021). Deep dive into digital transformation in higher education institutions. *Education Sciences*, *11*(12), 770. https://doi.org/10.3390/educsci11120770.

Alenezi, M., & Akour, M. (2023). Digital Transformation Blueprint in Higher Education: A Case Study of PSU. *Sustainability*, *15*(10), 8204. https://doi.org/10.3390/su15108204.

Almeida, F. (2018). Strategies to perform a mixed methods study. *European Journal of Education Studies*, *5*(1). https://doi.org/10.46827/ejes.v0i0.1902.

Azevedo, A., & Almeida, A. H. (2021). Grasp the Challenge of Digital Transition in SMEs—A Training Course Geared towards Decision-Makers. *Education Sciences*, *11*(4), 151. https://doi.org/10.3390/educsci11040151.

Barak, M. (2017). Science teacher education in the twenty-first century: A pedagogical framework for technology-integrated social constructivism. *Research in Science Education*, *47*, 283–303. https://doi.org/10.1007/s11165-015-9501-y.

Bean, J. C., & Melzer, D. (2021). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. John Wiley & Sons.

Becker, W., & Schmid, O. (2020). The right digital strategy for your business: an empirical analysis of the design and implementation of digital strategies in SMEs and LSEs. *Business Research*, *13*(3), 985–1005. https://doi.org/10.1007/s40685-020-00124-y.

Behnamnia, N., Kamsin, A., Ismail, M. A. B., & Hayati, A. (2020). The effective components of creativity in digital game-based learning among young children: A case study. *Children and Youth Services Review*, *116*. https://doi.org/10.1016/j.childyouth.2020.105227.

Blau, I., Shamir-Inbal, T., & Avdiel, O. (2020). How does the pedagogical design of a technology-enhanced collaborative academic course promote digital literacies, self-regulation, and perceived learning of students? *The Internet and Higher Education*, *45*. https://doi.org/10.1016/j.iheduc.2019.100722.

Borzea, D., & Goodboy, A. K. (2016). When Instructors Self-Disclose but Misbehave: Conditional Effects on Student Engagement and Interest. *Communication Studies*, *67*(5), 548–566. https://doi.org/10.1080/10510974.2016.1212912.

Bower, M., Dalgarno, B., Kennedy, G. E., Lee, M. J., & Kenney, J. (2015). Design and implementation factors in blended synchronous learning environments: Outcomes from a cross-case analysis. *Computers & Education*, *86*, 1–17. https://doi.org/10.1016/j.compedu.2015.03.006.

Braun, V., & Clarke, V. (2016). (Mis) conceptualising themes, thematic analysis, and other problems with Fugard and Potts'(2015) sample-size tool for thematic analysis. *International Journal of Social Research Methodology*, *19*(6), 739–743. https://doi.org/10.1080/13645579.2016.1195588.

Braun, V., Clarke, V., & Hayfield, N. (2022). 'A starting point for your journey, not a map': Nikki Hayfield in conversation with Virginia Braun and Victoria Clarke about thematic analysis. *Qualitative Research in Psychology*, *19*(2), 424–445. https://doi.org/10.1080/14780887.2019.1670765.

Campbell, M., Detres, M., & Lucio, R. (2019). Can a digital whiteboard foster student engagement? *Social Work Education*, *38*(6), 735–752. https://doi.org/10.1080/02615479.2018.1556631.

Chaaban, Y., Du, X., & Qadhi, S. (2021). Student teachers' perceptions of factors influencing learner agency working in teams in a STEAM-based course. *Eurasia Journal of Mathematics, Science and Technology Education*, *17*(7). https://doi.org/10.29333/EJMSTE/10978.

Comi, A., & Whyte, J. (2018). Future making and visual artefacts: An ethnographic study of a design project. *Organization Studies*, *39*(8), 1055–1083. https://doi.org/10.1177/0170840617717094.

Creswell, A., White, T., Dumoulin, V., Arulkumaran, K., Sengupta, B., & Bharath, A. A. (2018). Generative adversarial networks: An overview. *IEEE Signal Processing Magazine*, *35*(1), 53–65. https://doi.org/10.1109/MSP.2017.2765202.

Cuban, L., & Jandrić, P. (2015). The dubious promise of educational technologies: Historical patterns and future challenges. *E-Learning and Digital Media*, *12*(3–4), 425–439. https://doi.org/10.1177/2042753015579978.

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for

educational practice of the science of learning and development. *Applied Developmental Science*, *24*(2), 97–140. https://doi.org/10.1080/10888691.2018.1537791.

De Freitas, S. I., Morgan, J., & Gibson, D. (2015). Will MOOCs transform learning and teaching in higher education? Engagement and course retention in online learning provision. *British Journal of Educational Technology*, *46*(3), 455–471. https://doi.org/10.1111/bjet.12268.

Di Biase, R. (2019). Moving beyond the teacher-centred/learner-centred dichotomy: implementing a structured model of active learning in the Maldives. *Compare: A Journal of Comparative and International Education*, *49*(4), 565–583. https://doi.org/10.1080/03057925.2018.1435261.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. John Wiley & Sons.

Drugova, E., Zhuravleva, I., Aiusheeva, M., & Grits, D. (2021). Toward a model of learning innovation integration: TPACK-SAMR based analysis of the introduction of a digital learning environment in three Russian universities. *Education and Information Technologies*, *26*(4), 4925–4942. https://doi.org/10.1007/s10639-021-10514-2.

Ferri, F., Grifoni, P., & Guzzo, T. (2020). Online learning and emergency remote teaching: Opportunities and challenges in emergency situations. *Societies*, *10*(4), 86. https://doi.org/10.3390/soc10040086.

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs—principles and practices. *Health Services Research*, *48*(6pt2), 2134–2156. https://doi.org/10.1111/1475-6773.12117.

Gabriel, F., Marrone, R., Van Sebille, Y., Kovanovic, V., & de Laat, M. (2022). Digital education strategies around the world: practices and policies. *Irish Educational Studies*, *41*(1), 85–106. https://doi.org/10.1080/03323315.2021.2022513.

Gärtner, C. (2013). Cognition, knowing and learning in the flesh: Six views on embodied knowing in organization studies. *Scandinavian Journal of Management*, *29*(4), 338–352. https://doi.org/10.1016/j.scaman.2013.07.005.

Gong, C., & Ribiere, V. (2021). Developing a unified definition of digital transformation. *Technovation*, *102*. https://doi.org/10.1016/j.technovation.2020.102217.

Goodboy, A. K., Carton, S. T., Goldman, Z. W., Gozanski, T. A., Tyler, W. J., & Johnson, N. R. (2014). Discouraging Instructional Dissent and Facilitating Students' Learning Experiences Through Instructor Self-Disclosure. *Southern Communication Journal*, *79*(2), 114–129. https://doi.org/10.1080/1041794X.2013.865256.

Granić, A. (2022). Educational technology adoption: a systematic review. *Education and Information Technologies*, *27*(7), 9725–9744. https://doi.org/10.1007/s10639-022-10951-7.

Granić, A., & Marangunić, N. (2019). Technology acceptance model in educational context: A systematic literature review. *British Journal of Educational Technology*, *50*(5), 2572–2593. https://doi.org/10.1111/bjet.12864.

Guest, G., Namey, E. E., & Mitchell, M. L. (2013). *Collecting qualitative data: A field manual for applied research*. Sage.

Guillén-Gámez, F. D., & Mayorga-Fernández, M. J. (2020). Identification of variables that predict teachers' attitudes toward ICT in higher education for teaching and research: A study with regression. *Sustainability*, *12*(4), 1312. https://doi.org/10.3390/su12041312.

Gupta, V., & Jain, N. (2017). Harnessing information and communication technologies for effective knowledge creation: Shaping the future of education. *Journal of Enterprise Information Management*, *30*(5), 831–855. https://doi.org/10.1108/JEIM-10-2016-0173.

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, *3*, 275–285. https://doi.org/10.1016/j.susoc.2022.05.004.

Hattie, J., & Larsen, S. N. (2020). *The purposes of education: A conversation between John Hattie and Steen Nepper Larsen*. Routledge.

Hernández-Ramos, J. P., Martínez-Abad, F., Peñalvo, F. J. G., García, M. E. H., & Rodríguez-Conde, M. J. (2014). Teachers' attitude regarding the use of ICT. A factor reliability and validity study. *Computers in Human Behavior*, *31*, 509–516. https://doi.org/10.1016/j.chb.2013.04.039.

Howard, S. K., Chan, A., Mozejko, A., & Caputi, P. (2015). Technology practices: Confirmatory factor analysis and exploration of teachers' technology integration in subject areas. *Computers & Education*, *90*, 24–35. https://doi.org/10.1016/j.compedu.2015.09.008.

Hsu, L. (2016). Examining EFL teachers' technological pedagogical content knowledge and the adoption of mobile-assisted language learning: a partial least square approach. *Computer Assisted Language Learning*, *29*(8), 1287–1297. https://doi.org/10.1080/09588221.2016.1278024.

Judd, T. (2018). The rise and fall (?) of the digital natives. *Australasian Journal of Educational Technology*, *34*(5). https://doi.org/10.14742/ajet.3821.

Kreijns, K., Van Acker, F., Vermeulen, M., & Van Buuren, H. (2014). Community of inquiry: Social presence revisited. *E-Learning and Digital Media*, *11*(1), 5–18. https://doi.org/10.2304/elea.2014.11.1.5.

Krueger, R. A., & Casey, M. A. (2015). Focus group interviewing. In *Handbook of practical program evaluation* (pp. 506–534).

Lah, U., Lewis, J. R., & Šumak, B. (2020). Perceived usability and the modified technology acceptance model. *International Journal of Human–Computer Interaction*, *36*(13), 1216–1230. https://doi.org/10.1080/10447318.2020.1727262.

Lai, C., Hu, X., & Lyu, B. (2018). Understanding the nature of learners' out-of-class language learning experience with technology. *Computer Assisted Language Learning*, *31*(1–2), 114–143. https://doi.org/10.1080/09588221.2017.1391293.

Laurillard, D. (2013). *Teaching as a design science: Building pedagogical patterns for learning and technology*. Routledge.

Martin, F., Wang, C., Jokiaho, A., May, B., & Grübmeyer, S. (2019). Examining faculty readiness to teach online: A comparison of US and German educators. *European Journal of Open, Distance and E-Learning*, *22*(1), 53–69. https://doi.org/10.2478/eurodl-2019-0004.

Mohamed Hashim, M. A., Tlemsani, I., & Matthews, R. (2022). Higher education strategy in digital transformation. *Education and Information Technologies*, *27*, 3171–3195. https://doi.org/10.1007/s10639-021-10739-1.

Msweli, N. T., Mawela, T., & Twinomurinzi, H. (2023). Transdisciplinary teaching practices for data science education: A comprehensive framework for integrating disciplines. *Social Sciences & Humanities Open*, *8*(1). https://doi.org/10.1016/j.ssaho.2023.100628.

Nkomo, L. M., Daniel, B. K., & Butson, R. J. (2021). Synthesis of student engagement with digital technologies: a systematic review of the literature. *International Journal of Educational Technology in Higher Education*, *18*, 1–26. https://doi.org/10.1186/s41239-021-00270-1.

Oke, A., & Fernandes, F. A. P. (2020). Innovations in Teaching and Learning: Exploring the Perceptions of the Education Sector on the 4th Industrial Revolution (4IR). *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(2), 31. https://doi.org/10.3390/joitmc6020031.

Parwata, I. W., Hariyadi, A., & Chakim, M. H. R. (2023). The Development of Digital Teaching to Improve the Quality of Student Learning in the Revolution 4.0 Era at Warmadewa University. *Jurnal Iqra': Kajian Ilmu Pendidikan*, *8*(1), 254–269. https://doi.org/10.25217/ji.v8i1.3199.

Popescu, E., & Badea, G. (2020). Exploring a community of inquiry supported by a social media-based learning environment. *Educational Technology & Society*, *23*(2), 61–76. https://www.jstor.org/stable/26921134.

Salmon, G. (2019). May the Fourth Be with you: Creating Education 4.0. *Journal of Learning for Development*, *6*(2). https://doi.org/10.56059/jl4d.v6i2.352.

Sarker, M. N. I., Wu, M., Cao, Q., Alam, G. M., & Li, D. (2019). Leveraging Digital Technology for Better Learning and Education: A Systematic Literature Review. *International Journal of Information and Education Technology*, *9*(7), 453–461. https://doi.org/10.18178/ijiet.2019.9.7.1246.

Sasson, I., Yehuda, I., & Malkinson, N. (2018). Fostering the skills of critical thinking and question-posing in a project-based learning environment. *Thinking Skills and Creativity*, *29*, 203–212. https://doi.org/10.1016/j.tsc.2018.08.001.

Scully, D., Lehane, P., & Scully, C. (2021). 'It is no longer scary': digital learning before and during the Covid-19 pandemic in Irish secondary schools. *Technology, Pedagogy and Education*, *30*(1), 159–181. https://doi.org/10.1080/1475939X.2020.1854844.

Selwyn, N. (2016). Minding our language: why education and technology is full of bullshit… and what might be done about it. *Learning, Media and Technology*, *41*(3), 437–443. https://doi.org/10.1080/17439884.2015.1012523.

Spais, G., & Paul, P. (2021). A crisis management model for marketing education: Reflections on marketing education system's transformation in view of the COVID-19 crisis. *Marketing Education Review*, *31*(4), 322–339. https://doi.org/10.1080/10528008.2021.1951120.

Tarrayo, V. N., & Anudin, A. G. (2023). Materials development in flexible learning amid the pandemic: perspectives from English language teachers in a Philippine state university. *Innovation in Language Learning and Teaching*, *17*(1), 102–113. https://doi.org/10.1080/17501229.2021.1939703.

Tarrayo, V. N., Paz, R. M. O., & Gepila Jr, E. C. (2023). The shift to flexible learning amidst the pandemic: the case of English language teachers in a Philippine state university. *Innovation in Language Learning and Teaching*, *17*(1), 130–143. https://doi.org/10.1080/17501229.2021.1944163.

Ting, Y. L. (2015). Tapping into students' digital literacy and designing negotiated learning to promote learner autonomy. *The Internet and Higher Education*, *26*, 25–32. https://doi.org/10.1016/j.iheduc.2015.04.004.

Turnbull, D., Chugh, R., & Luck, J. (2021). Transitioning to E-Learning during the COVID-19 pandemic: How have Higher Education Institutions responded to the challenge? *Education and Information Technologies*, *26*(5), 6401–6419. https://doi.org/10.1007/s10639-021-10633-w.

Wannapiroon, N., & Pimdee, P. (2022). Thai undergraduate science, technology, engineering, arts, and math (STEAM) creative thinking and innovation skill development: a conceptual model using a digital virtual classroom learning environment. *Education and Information Technologies*, *27*(4), 5689–5716. https://doi.org/10.1007/s10639-021-10849-w.

Winter, E., Costello, A., O'Brien, M., & Hickey, G. (2021). Teachers' use of technology and the impact of Covid-19. *Irish Educational Studies*, *40*(2), 235–246. https://doi.org/10.1080/03323315.2021.1916559.

Zen, Z., & Ariani, F. (2022). Academic achievement: the effect of project-based online learning method and student engagement. *Heliyon*, *8*(11). https://doi.org/10.1016/j.heliyon.2022.e11509.